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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,516	08/21/2003	Thomas C. Pederson	GP-301710	8899

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CARY W. BROOKS
General Motors Corporation
Legal Staff, Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,516

Applicant(s)

PEDERSON, THOMAS C.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 and 44-52 is/are pending in the application.
- 4a) Of the above claim(s) 1-20, 37-42 and 44-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-36 is/are rejected.
- 7) ☒ Claim(s) 27 is/are objected to.
- 8) ☒ Claim(s) 1-42 and 44-52 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II (claims 21-36) in the reply filed on September 27, 2005 is acknowledged. The traversal is on the ground(s) that there is no additional burden on the examiner to examine all groups of claims together, such that the species are so closely related that the field of search necessary to properly search any one of the species would encompass the other species as well. Therefore, since a different search is not required, there is no serious burden as required by MPEP 803.

This is not found persuasive because, contrary to the applicant's belief, the differences between the disclosed species are such that each species would require a different search. For example, the search for species IV – a process including the step of topically applying a finely divided powder comprising brominated compounds including a carbon chain to a plurality of polymer beads, without forming a molded pattern, would not uncover any of the other species, all of which include a molding step. Furthermore, the search for any of the species I, III, or IV would not uncover the limitations of species II, which includes pouring molten metal into a mold.

To further clarify his position, the examiner notes that the election of species is proper because the species disclosed in the instant application are independent inventions as defined in MPEP 806.04 ("If it can be shown that the two or more inventions are in fact independent, applicant should be required to restrict the claims presented to but one of such independent inventions"). Further, regarding election of species, MPEP 808.01(a) sets forth that when "claims are directed to independent

inventions, restriction is proper pursuant to 35 USC 121, and it is not necessary to show a separate status in the art or separate classification.”.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the y-axis of Figure 7 has a misspelled term “Molecullar”, which should be spelled as “Molecular”. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary,

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the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: on page 2, 2nd line, replace "addition" with "additional". In paragraphs [0010] and [0030], last line of both claims, replace "substituent" with "substituents". Appropriate correction is required.

Claim Objections

5. Claim 27 is objected to because of the following informalities: in the 2nd line, replace "substituent" with "substituents" for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (specification; paragraphs [0002]-[0003]; and Figures 1 and 2) in view of Sonnenberg et al. (US 6,303,664).

The applicants' admitted prior art (AAPA) discloses a process of lost foam casting that includes the steps of providing a plurality of preexpanded polystyrene beads in a mixture with brominated alkane compounds (aromatic HCBT or TBCO compounds) to form a molded pattern for lost foam casting; forming a lost foam casting mold with the molded pattern; and pouring molten metal (aluminum) onto the molded pattern to depolymerize the polystyrene beads with the brominated compounds (specification; paragraphs [0002]-[0003]; and Figures 1 and 2). The AAPA does not specifically disclose that the method includes topically applying a finely divided powder onto the plurality of beads, such that the brominated alkane has at least one substituent aromatic group.

However, Sonnenberg et al. disclose a method of reducing residual carbon in a lost foam casting process (e.g. casting of aluminum), in which the method includes using an expandable vinyl aromatic polymer containing a bromine-attached aliphatic or aromatic flame retardant (including a variety of brominated alkanes with at least three substituent aromatic and/or phenyl groups, within the range of 0.1 to 5% by weight, and having up to six bromine substituents), topically applied to preexpanded polystyrene beads in powder/particle form, with these features being advantageous for producing

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castings having smooth surfaces with significantly fewer signs of carbon deposits (abstract; column 2, line 33 through column 6, line 51).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the process of lost foam casting set forth in the AAPA, by using the step of topically applying a finely divided powder onto the plurality of beads, such that the brominated alkane has at least one substituent aromatic group, as taught by Sonnenberg et al., in order to obtain castings having smooth surfaces with significantly fewer signs of carbon deposits (Sonnenberg et al.; abstract; column 2, lines 47-59; and column 3, lines 23-27).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4,286,071 and US 6,710,094 are also cited in PTO-892.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 10/7/05*
Primary Examiner
Art Unit 1725

KPK

kpk

October 7, 2005